

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P243430

Luminaire Tested: **S123RDR-H560D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243430  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDR-H560D835-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

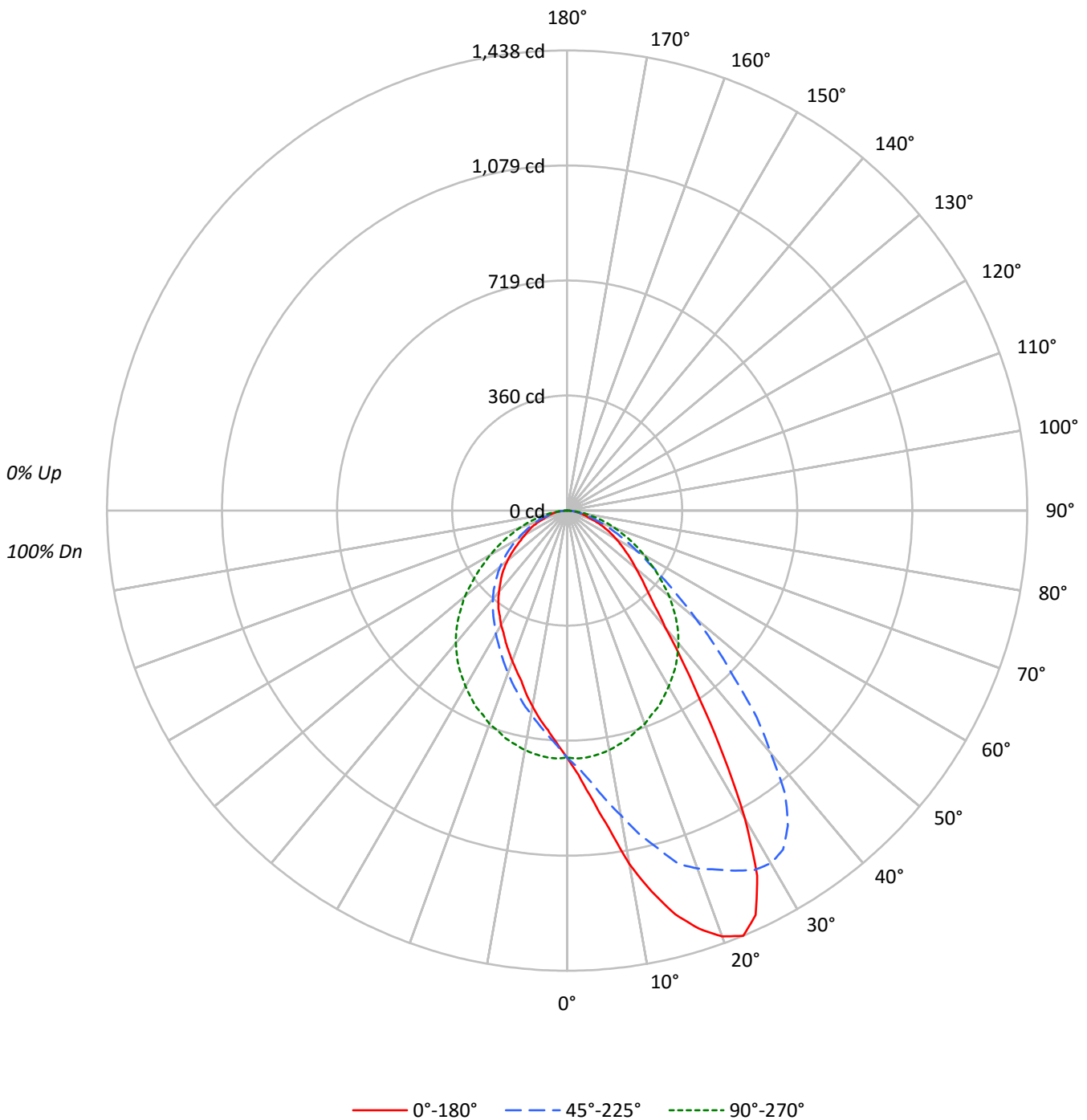
Lumens per Lamp: N/A  
Luminaire Lumens: 2011.5 lumens  
Efficiency: N/A  
Efficacy: 116.9 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 17.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	9358	9358	9358
5°	11032	9409	8380
10°	13810	9354	7647
15°	16389	9261	6927
20°	18265	9149	6450
25°	18644	9037	6072
30°	15536	8884	5776
35°	10732	8760	5534
40°	7543	8560	5242
45°	6056	8257	4959
50°	5280	7863	4588
55°	4734	7276	4085
60°	4284	6722	3702
65°	3749	6195	3462
70°	3023	5575	2931
75°	2623	4857	2871
80°	2422	4139	2883
85°	2128	3338	2503



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	75.7	3.8
10°-20°	238.4	11.9
20°-30°	382.0	19.0
30°-40°	414.7	20.6
40°-50°	355.3	17.7
50°-60°	269.3	13.4
60°-70°	172.1	8.6
70°-80°	82.3	4.1
80°-90°	21.6	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	696.1	34.6
0°-40°	1110.9	55.2
0°-60°	1735.5	86.3
0°-90°	2011.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2011.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	772	772	772	772	772	
5°	907	851	773	703	689	93
15°	1306	1092	738	593	552	370
25°	1394	1242	676	491	454	619
35°	725	1202	592	402	374	466
45°	353	736	482	318	289	279
55°	224	361	344	228	193	202
65°	131	174	216	138	121	130
75°	56	68	104	65	61	60
85°	15	16	24	19	18	17
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0
2.5°	827.3	828.3	826.7	826.3	826.0	820.7	819.0	816.3	807.0	804.7	803.0
5°	906.7	904.0	907.0	901.3	895.0	891.3	885.3	872.0	860.3	851.0	845.0
7.5°	1000.7	1001.7	998.7	993.3	980.7	975.3	959.0	943.0	927.7	908.3	894.0
10°	1122.0	1114.0	1115.7	1099.0	1085.7	1069.7	1047.3	1021.7	994.7	967.3	947.0
12.5°	1218.6	1224.3	1220.3	1212.3	1186.6	1171.0	1150.6	1113.3	1070.7	1034.0	1003.0
15°	1306.0	1298.3	1299.3	1280.0	1270.6	1256.3	1222.6	1185.6	1158.0	1091.7	1055.0
17.5°	1370.0	1369.3	1368.3	1352.0	1340.6	1310.6	1276.3	1238.3	1203.6	1157.6	1111.7
20°	1416.0	1421.0	1419.6	1406.3	1386.3	1357.3	1336.6	1289.3	1232.3	1190.3	1134.0
22.5°	1438.0	1438.3	1439.0	1432.6	1419.3	1400.6	1371.3	1333.3	1282.6	1214.0	1151.3
25°	1394.0	1395.6	1404.3	1409.6	1413.3	1405.0	1389.6	1355.3	1311.6	1241.6	1176.6
27.5°	1286.0	1291.3	1301.0	1333.0	1346.0	1364.0	1370.3	1356.6	1324.3	1266.0	1192.0
30°	1110.0	1125.0	1134.3	1170.6	1221.6	1269.6	1292.3	1314.6	1311.6	1273.0	1198.0
32.5°	908.7	918.3	945.3	984.3	1024.7	1095.0	1173.6	1227.6	1258.0	1256.0	1203.0
35°	725.3	739.3	762.3	792.0	847.7	920.7	1009.7	1094.7	1170.6	1202.3	1183.3
37.5°	588.7	590.0	611.7	653.7	688.3	752.7	833.0	938.0	1037.7	1120.3	1138.6
40°	476.7	486.0	497.3	523.7	564.7	626.3	679.7	783.0	886.3	990.0	1064.0
42.5°	406.0	406.0	418.7	435.3	462.7	499.7	563.3	657.0	750.0	877.3	960.7
45°	353.3	356.7	362.3	373.0	392.3	421.0	470.3	534.0	629.0	736.0	861.3
47.5°	315.3	315.0	320.0	326.3	341.3	363.0	392.0	443.7	514.0	629.3	740.0
50°	280.0	281.3	285.0	290.3	300.3	315.7	334.0	373.0	432.3	523.7	639.7
52.5°	252.7	252.3	255.3	258.7	266.3	275.0	291.3	320.3	361.3	434.0	530.3
55°	224.0	225.3	229.0	231.0	237.3	243.0	256.7	273.0	306.0	360.7	448.3
57.5°	199.3	201.0	203.0	205.0	209.3	215.0	226.3	236.3	260.3	299.7	369.7
60°	176.7	176.0	178.3	181.7	184.0	189.0	195.3	205.7	222.3	250.3	301.7
62.5°	154.0	154.3	154.7	156.7	161.0	165.3	171.0	178.7	188.7	209.3	245.7
65°	130.7	131.0	131.7	133.7	138.0	140.7	146.7	153.3	161.3	173.7	199.0
67.5°	110.0	111.3	111.3	113.0	114.7	117.3	121.7	126.7	133.3	142.3	158.7
70°	85.3	85.0	86.7	90.0	91.7	96.3	99.3	102.7	108.7	114.3	128.3
72.5°	68.7	68.7	68.7	70.0	70.3	71.3	73.3	80.3	85.0	90.7	98.3
75°	56.0	56.3	56.3	56.7	57.0	58.0	58.7	60.7	62.0	68.0	72.7
77.5°	44.7	45.0	45.0	45.3	45.7	46.0	47.3	47.3	48.3	49.7	51.7
80°	34.7	34.3	34.3	34.7	34.7	35.7	35.7	36.3	36.7	37.3	38.3
82.5°	24.7	24.3	24.7	24.3	24.7	25.0	25.7	25.3	26.0	26.7	27.0
85°	15.3	15.7	15.7	16.3	16.0	15.7	16.0	16.0	16.0	16.0	16.7
87.5°	6.7	7.3	7.3	7.0	7.3	7.3	6.7	7.3	7.3	7.3	7.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0
2.5°	802.0	800.7	795.7	791.0	784.0	781.0	777.0	775.3	770.0	762.7	759.3
5°	839.3	829.3	819.7	808.0	798.3	787.0	780.7	773.3	762.0	751.7	744.3
7.5°	879.0	864.3	846.3	827.0	809.7	793.3	779.3	767.7	753.0	738.7	727.3
10°	922.7	897.7	868.7	844.0	819.0	795.3	777.7	760.0	741.0	723.0	709.3
12.5°	969.7	934.3	899.3	862.3	825.0	797.7	771.3	748.7	727.3	708.3	692.0
15°	1018.3	970.0	925.3	883.7	831.7	795.0	766.0	738.0	711.3	688.0	672.0
17.5°	1053.0	997.7	941.3	882.3	837.7	792.3	756.3	721.0	696.3	672.3	650.7
20°	1085.0	1022.3	955.3	900.3	838.0	782.7	743.3	709.3	675.0	649.3	631.0
22.5°	1098.7	1042.0	974.3	898.0	835.7	779.0	728.3	690.0	659.3	631.3	607.3
25°	1101.3	1038.0	968.7	895.0	826.7	765.3	714.0	675.7	635.7	606.7	588.0
27.5°	1113.0	1026.3	958.3	885.0	815.7	751.7	697.7	655.0	617.7	586.7	562.7
30°	1116.0	1021.3	936.3	866.3	795.0	732.3	677.7	634.7	594.0	562.3	540.7
32.5°	1117.3	1014.7	913.3	836.7	768.7	709.7	659.7	613.0	574.3	541.0	518.7
35°	1112.7	1005.3	885.7	803.0	737.7	679.7	633.3	592.0	549.0	517.7	494.0
37.5°	1094.3	990.7	870.0	763.7	701.3	646.7	607.3	566.7	527.0	493.0	468.7
40°	1059.7	969.3	840.7	730.7	660.0	611.0	574.3	541.0	501.0	468.3	444.3
42.5°	1004.3	940.3	813.7	693.3	619.0	572.7	542.0	513.3	477.3	446.3	420.0
45°	922.3	899.7	777.7	655.3	574.3	530.7	504.0	481.7	449.0	420.7	396.3
47.5°	833.7	838.7	741.3	616.7	533.7	492.0	468.7	449.0	424.3	394.0	371.7
50°	731.3	758.7	690.3	577.7	493.0	452.0	429.0	417.0	394.0	368.7	347.7
52.5°	637.7	681.0	638.7	535.0	453.0	412.7	391.3	379.3	364.0	343.0	321.7
55°	540.7	595.7	565.0	489.0	412.3	371.7	353.7	344.3	331.7	315.3	296.0
57.5°	460.3	519.0	499.7	440.7	372.7	336.0	320.0	309.3	301.7	286.7	271.0
60°	381.7	436.0	428.3	385.0	333.3	298.3	286.0	277.3	271.0	260.0	244.7
62.5°	308.0	360.7	365.3	331.3	295.0	263.3	252.0	246.0	241.0	232.3	218.3
65°	244.3	290.7	300.3	274.3	254.7	230.7	219.7	216.0	212.3	202.3	191.7
67.5°	191.3	227.7	240.3	225.7	211.7	197.7	189.0	184.0	181.3	175.3	168.0
70°	146.3	177.7	188.3	182.0	172.7	167.3	160.7	157.3	154.7	147.0	143.0
72.5°	109.7	131.0	144.3	142.3	140.3	136.7	132.7	131.7	127.7	122.7	119.0
75°	80.3	92.7	104.7	109.0	108.3	109.7	105.3	103.7	101.3	97.7	94.7
77.5°	57.7	65.0	73.3	78.7	81.3	81.7	81.7	80.7	79.0	76.3	74.0
80°	40.0	41.7	49.3	54.3	57.0	59.0	59.0	59.3	57.7	56.7	55.0
82.5°	27.7	28.7	30.3	34.3	37.7	40.0	40.3	40.0	39.3	39.0	36.7
85°	17.3	17.0	17.0	18.0	20.7	23.0	23.3	24.0	23.7	23.3	21.0
87.5°	7.3	7.3	7.7	7.3	8.3	8.7	9.3	11.0	10.7	9.0	8.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0
2.5°	757.3	753.0	749.0	744.7	739.3	734.3	733.7	733.0	734.7	731.3	730.0
5°	738.7	730.3	724.0	716.0	710.3	703.0	699.0	698.0	697.7	695.7	693.0
7.5°	718.3	709.3	700.3	691.3	682.0	674.3	670.0	667.7	665.7	662.3	659.7
10°	699.3	688.0	678.3	666.0	656.0	646.0	642.0	638.7	636.7	632.0	628.3
12.5°	678.0	663.7	653.0	639.7	630.7	622.0	615.7	609.3	604.7	597.7	594.7
15°	659.3	644.3	626.3	618.3	605.7	592.7	585.7	585.7	576.0	570.3	566.7
17.5°	634.3	621.3	608.7	592.3	574.3	566.7	558.7	551.7	545.0	543.3	536.7
20°	612.3	597.0	584.0	566.3	550.0	541.0	531.7	524.0	519.0	514.3	510.7
22.5°	590.7	575.3	555.3	538.0	527.0	515.0	505.0	498.3	494.0	487.0	483.7
25°	568.0	549.7	531.7	514.7	501.0	490.7	480.3	476.7	469.0	465.3	460.7
27.5°	545.3	523.3	506.3	491.7	476.3	466.3	459.3	452.7	446.0	444.0	441.3
30°	520.0	499.7	483.3	469.0	454.3	445.7	437.3	431.3	425.7	421.3	418.3
32.5°	494.7	477.7	462.0	445.3	432.0	422.7	415.7	410.3	407.7	400.3	397.7
35°	471.3	454.0	437.3	421.7	411.0	402.0	395.7	390.7	385.0	380.3	377.7
37.5°	447.3	431.7	414.7	401.3	389.3	382.0	375.0	368.3	364.0	361.3	358.0
40°	424.0	407.3	394.3	379.7	369.0	360.7	353.3	348.3	343.0	340.7	336.3
42.5°	402.0	386.0	371.0	357.7	348.0	340.0	333.0	327.3	323.0	318.7	316.3
45°	376.7	362.7	349.0	335.7	326.7	318.0	310.3	305.3	299.3	295.7	294.3
47.5°	355.3	340.7	326.0	313.7	304.3	295.0	288.7	282.7	277.7	274.0	272.0
50°	330.0	316.3	304.3	292.0	283.0	273.0	265.3	259.7	254.0	251.3	248.0
52.5°	308.3	295.0	280.3	269.3	259.0	250.3	243.3	238.7	233.7	229.7	227.3
55°	281.3	268.3	256.7	245.0	234.7	227.7	222.0	214.0	209.7	205.7	199.3
57.5°	257.7	245.3	233.0	221.7	212.0	203.7	196.7	191.3	185.7	182.7	178.3
60°	232.7	219.7	208.3	199.7	189.0	180.0	175.3	169.0	164.3	159.7	158.3
62.5°	208.0	196.0	184.7	175.7	166.0	159.0	153.0	150.0	145.3	141.7	140.3
65°	182.3	172.3	161.7	151.7	145.7	137.7	134.3	129.3	126.7	125.0	124.7
67.5°	157.0	148.0	138.3	130.7	125.0	119.7	115.7	113.7	111.0	109.0	107.3
70°	134.0	125.3	117.0	110.7	106.3	102.3	99.7	96.0	93.3	90.7	87.0
72.5°	111.3	104.3	97.3	92.3	88.0	85.7	82.0	76.3	73.7	73.0	72.7
75°	90.3	82.7	77.7	75.0	71.0	65.3	63.0	62.3	62.0	61.3	61.3
77.5°	69.7	65.0	61.7	56.0	54.0	53.7	52.0	51.7	51.0	51.3	51.3
80°	50.7	48.0	44.0	42.3	41.7	42.0	41.3	41.7	41.0	41.3	40.7
82.5°	33.7	31.3	32.0	31.0	31.0	31.7	31.3	30.3	30.3	30.0	30.0
85°	20.0	19.7	20.3	20.3	20.0	19.0	19.7	19.3	18.3	18.7	18.7
87.5°	8.7	8.7	8.7	8.3	8.7	8.3	8.3	8.3	7.3	7.3	7.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





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**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	772.0	772.0	772.0	772.0
2.5°	730.7	730.0	729.0	728.0
5°	693.0	690.0	689.7	688.7
7.5°	657.7	656.3	654.0	656.7
10°	625.3	626.3	624.0	621.3
12.5°	591.7	589.7	586.0	588.0
15°	562.0	558.7	556.7	552.0
17.5°	531.0	528.3	528.3	525.3
20°	504.0	501.3	502.0	500.0
22.5°	481.3	479.3	476.3	476.7
25°	460.0	457.0	453.7	454.0
27.5°	436.3	433.7	433.0	430.7
30°	415.3	413.0	412.7	412.7
32.5°	395.0	394.0	392.3	391.3
35°	377.3	376.0	373.3	374.0
37.5°	355.3	354.0	353.7	353.3
40°	334.7	333.7	331.0	331.3
42.5°	314.0	312.3	310.7	310.0
45°	291.7	291.3	288.7	289.3
47.5°	270.3	269.7	268.3	266.7
50°	246.7	246.3	245.3	243.3
52.5°	223.7	222.7	220.7	218.7
55°	197.7	194.7	195.0	193.3
57.5°	176.3	175.0	172.3	171.3
60°	155.7	154.3	154.0	152.7
62.5°	138.3	137.0	136.0	136.0
65°	122.7	121.0	120.7	120.7
67.5°	105.3	103.7	103.3	102.7
70°	83.7	83.3	82.7	82.7
72.5°	72.0	71.7	72.0	70.7
75°	61.3	61.0	61.0	61.3
77.5°	51.0	51.0	50.7	50.7
80°	40.3	40.7	40.3	41.3
82.5°	30.3	29.7	30.0	29.3
85°	18.7	18.7	18.0	18.0
87.5°	7.3	7.3	7.3	7.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)